

ROTATION OF HOLOGRAPHIC DISC (DEGREES)

	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
LASER 1		1			14	4		13		3	8		5		10				
LASER 2	6	12	9	15	2		16	1											
LASER 3	8	5	10	7	11	6	12	9	15										

NUMBERS IN BOXES REPRESENT FACETS BEING ILLUMINATED

t = 0

	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360
	7	11	6	12	9	15	2											
	4	13	3	8	5	10	7	11	6									
	2	16	1	14	4	13	3											

FIG. 5A





FACET LIGHT COLLECTION EFFICIENCY

Z = DISTANCE FROM SCAN POINT ON LABEL (MAX = FOCAL LENGTH PLUS 5 INCHES)

A Area = AREA OF CORRESPONDING FACET

R = RADIUS OF EFFECTIVE CIRCULAR APERTURE

R_{pr} = RADIUS OF PROJECTED EFFECTIVE CIRCULAR APERTURE

B = ANGLE BETWEEN OUTGOING BEAM AND THE DISC SURFACE

δ = HALF-ANGLE SUBTENDED BY EFFECTIVE PROJECTED CIRCULAR APERTURE

E_L = LAMBERTIAN LIGHT COLLECTION EFFICIENCY

FIG. 10K

$$R_{pr} := \sqrt{\frac{\chi^A \sin B}{\pi}} \quad \delta := \text{atan} \left[\frac{R_{pr}}{Z} \right]$$

$$E_L := (\sin(\delta))^2$$

FIG. 10L1

FOR FACET 16 :

$$Z := 70 \text{ inches}$$

$$\text{deg} = \frac{\pi}{180}$$

$$A := 4.7 \text{ square inches}$$

$$B := 48.2 \text{ deg}$$

$$E_L := 0.00022756$$

FIG. 10L